THE MARINE RECORD.

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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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REPAIRING A BROKEN SHAFT.

The engineers of the British steamer Holkar have just repaired a broken shaft in a very ingenious manner. It appears that when the vessel was 650 miles west of Queenstown the intermediate shaft, second abaft of thrust, snapped of vertically, and the ship became helpless in the trough of the sea. A consultation followed the examination of the damage, and Chief Engineer Taylor set to work making repairs." At this time the captain considered such an undertaking impossible, as there were no tools on board the ship calculated to aid in the work. Mr. Taylor and his men were greatly interfered with by the rolling of the ship, but managed by means of chains and tackle to draw together the fractured ends of the shaft and bind them. Several times they were snapped apart again by the force of the sea against the propeller, but were finally made secure. After this the chief and his men set to work and made boring tools out of old files and scraps of iron, and afterwards started to drill two holes through the steel shaft, which is eleven inches in diameter. This work was accomplished with the greatest difficulty, and through these holes were driven two large bolts, which were made fast by nut and threads on either side, and the fractured ends were drawn tightly together. To further secure the break the bands were taken from the discharging booms and bound around the shaft. When this was done Mr. Taylor had prepared a composition of metal made of lead and zinc, and filled in the crevices of the fracture with this. The work of effecting the temporary repairs occupied a period of three days and twelve hours, and at the expiration of that time the disabled Holkar was heading back for Queenstown at the rate of five knots an hour. While adrift in a helpless condition the Holkar was approached by many eastward-bound steamships anxious to take her in tow.

FISH CULTURE.

Only the innumerable accidents to which fishes' eggs are subject prevent the overproduction of all bodies of water containing fish. A single carp has yielded 300,000 eggs; a single cod, 9,000,000; a sole, 100,000; a mackerel, 500,000; a flounder, 1,357,000, and a pike, 160,000. The eggs of one sturgeon when counted numbered 1,567,000, and there is a tradition of a giant sturgeon from which 119 pounds of roe were taken. That would indicate 7,650,000 eggs.

THE BERING SEA PATROL.

The reports of the U. S. naval officers commanding the vessels on the Bering Sea patrol present a very discouraging outlook for the future of our seal fisheries. Generally these reports show that the regulations imposed in accordance with the findings of the Paris arbitration are of little avail in protecting the seals during what is known as the open season. While a belt of sixty miles of the ocean surrounding the seal islands is closed to sealing craft, they have not suffered from the prohibition, for the naval officers report that the seals are found asleep all over the surface of the ocean outside of the closed zone. The pelagic sealers killed about 25,000 seals in this way last season, and the officers estimate that fully 80 per cent. of these were females, entailing an additional loss of as many pup seals. In addition to this number, it is not doubted that many more seals were killed and sunk before their bodies could be recovered, and so were not reported. One officer ventures the prediction that at the present rate of slaughter seals will be exterminated within five years, regardless of any action by our government in the direction of suspending the taking of seals on the seal islands for a specified number of years.

YACHT BUILDING.

Thos. D. and Eli N. Drouillard are having built at Wyandotte, Mich., a steam yacht of the following dimensions: 50 feet over all, 8½ feet beam and 4 feet 9 inches deep, fitted with an 8 by 10 engine. An auxiliary yacht is also being built at the same yard by Hugh Convery, formerly with the Davis Boat & Oar Co., for Charles H. Riopelle. Other smaller tonnage is being constructed at the same yards.

TONNAGE STATISTICS.

The books of the United States Treasury Department contained the names of 3,761 vessels of 1,260,707.22 gross tons register in the lake trade. The lakes have more steam vessels of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other parts of the country. The number of steam vessels of 1,000 to 2,500 tons on the lakes on June 30, 1893, was 318 and their aggregate gross tonnage 525,778.57.

In all other parts of the country the number of this class of vessels was, on the same date, 211, and their gross tonnage 314,016.65. The classification of the entire lake fleet on June 30, 1893, was as follows:

Class.	No.	Gross tonnage.
Steam vessels	1,731	828,702.29
Sailing vessels	1,205	317,789.37
Canal boats	743	76,843.57
Barges	82	37,371.99
Totals	3,761	1,260,707.22

The gross registered tonnage of vessels built on the lakes during the past five years, according to the reports of the United States Commissioner of Navigation, is as follows:

Years.	No.	Gross Tonnage.
1889	225	107,080.30
1890	218	108,515.00
1891	204	111,856.45
1892	169	45,168.98
1893	175	99,271.24
Totals	991	471,891.97

As showing how the lakes exceed the sea-coast built tonnage in size, figures are quoted from the report of the Commissioner of Navigation in reference to the number of vessels enrolled during the quarter ended September 30, 1894. In the whole country seven steel steamers were built, of which one, built on the lakes, had a tonnage of 2,624.03, as compared with four on the Atlantic coast with a total tonnage of only 1,057.25 and two on the Western rivers with a total tonnage of 563.78. The only iron steamer built during the quarter was enrolled on the Atlantic coast and registered only 408.88 tons gross. The wooden tonnage stands as follows for the quarter:

	Steam		Sail	
	No.	Gross Tonnage	No.	Gross Tonnage
Atlantic and Gulf	30	1,734.80	111	10,472.74
Pacific	6	777.17	15	1,037.09
Great Lakes	22	4,402.81	8	187.83
Western Rivers	18	2,309.96	...	.....
Total	76	9,224.74	134	11,697.66

	No.	Gross tons.	Previous Quarter	No.	Gross tons.
Total steam	84	13,878.68	Total steam	105	35,065.25
Total Sail	134	11,697.66	Total Sail	199	13,438.03
Grand total	218	25,576.34	Grand total	304	48,503.28

The lake tonnage for the year ending June 30, 1894, amounted to 3,341 vessels of 1,227,400.72 tons.

*Decrease largely due to withdrawal of canal boats from trade with Canada and to closer correction of records.

NEWS AROUND THE LAKES.

CHICAGO, ILL.

Special Correspondence to The Marine Record.

The Chicago Seamen's Union have raised wages to $1.75 per day.

The steamer Kate Buttroni was chartered for barley to Kingston at 2¼ cents.

Palmer, Cook & Calbick chartered the steamer New Orleans for corn to Buffalo at 1¼ cents.

J. J. Rardon & Co. chartered the steamer Italia for oats at 1⅛ cents, and wheat at 1⅜ cents to Buffalo.

The Independent Tug Line purchased the schooner John Raber for $165 and the schooner Cayauga for $140 at marshal's sale on the 3rd inst.

Carr & Blair chartered the steamer D. C. Whitney and consort Wayne for corn to Buffalo at 1¼ cents; steamer John Spry and consort J. T. Johnson for wheat to Milwaukee at ¾ of a cent.

At J. B. Bates & Co., shipbuilders, the barge John T. Johnson received a new rudder and rudder stand, the steamer Iroquois received a new stem, the steamer Adella Shores received new scuppers.

The schooner America, Capt. A. McGraw, arrived here October 5th with lumber from Manistique. She left here September 6th, contrary winds and bad weather causing her to be one whole month making the trip. She is being stripped and will go into winter quarters.

Elphicke & Co. chartered the steamer Iron Age and consort Iron City for wheat to Buffalo at 1½ cents; schooner S. V. R. Watson for barley to Buffalo at 1¼ cents; steamer Byron Whittaker for corn to Buffalo at 1¼ cents; steamer Rhoda Emily, wheat to Milwaukee at ¾ of a cent, free in and out.

J. G. Keith & Co. chartered the steamer Chas. A. Eddy for wheat to Buffalo at 1⅜ cents, steamer Egyptian for corn to Oswego at 2⅝ cents, steamer Sachem and schooner George Sturges and Mary D. Ayer for corn to Port Huron at 1¼ cents, steamer Iron Chief for oats at 1⅛ cents and consort Iron Cliff for wheat at 1⅜ cents to Buffalo.

Capt. F. D. Herriman, manager of the lake department for the Bureau Veritas, will go to Everett, Wash., this week to inspect, with a view to classing, the Pacific Steel Barge Co.'s whaleback passenger and freight steamer, to be named the Everett, building by them in Puget Sound, and to be launched on the 22nd inst. The steamer Everett's dimensions are 361 feet over all, 42 feet beam, 26 feet depth of hold.

The steamer Ira H. Owen, Capt. Quincy Owen, has been having excellent dispatch recently. She arrived at Buffalo Friday afternoon, September 28th, with grain from Chicago; discharged her cargo, loaded 2,600 tons of coal for Milwaukee; discharged her cargo, went light to South Chicago, where she loaded with oats and left Saturday afternoon for Buffalo again.

The result of the investigation by the Chicago local inspectors of the causes that led to the sinking of the fire boat Yosemite in September, was given out on Tuesday. Capt. Patrick J. Flavey, license revoked; Pilot James F. Nolan, license suspended 30 days; Pilot John Hubbard, license suspended 15 days; Engineer Alex. D. Brown, license suspended 30 days.

The steamer Lorain L. arrived here Tuesday morning in tow of the steamer City of Kalamazoo and was taken to Miller Bros.' shipyard and put in dry dock and had her shoe straightened. The Lorain L., when leaving South Haven Saturday at 4 a. m., bound for Chicago with a cargo of fruit, struck the bar and became disabled and went ashore south of the piers. She was released Saturday night by the tug Tramp of St. Joseph.

At Miller Bros.' shipyard the schooners Mary Collins and J. H. Mead were in dock to have leaks stopped, the tugs E. E. Rice and Peter Dalton to have their stern bearings fixed and leaks stopped; the steamer George Dunbar for some calking; the steamer S. K. Martin for repairs to her wheel; the schooner D. L. Filer received a new fore gaff. The repairs on the fire tug Yosemite are nearly completed. She will go out of dock this week.

WILLIAMS.

DETROIT, MICH.

Special Correspondence to The Marine Record.

C. W. Norton has placed the schooner J. S. Richards for wheat to Ogdensburg at 3½ cents.

The steamer Manchester was towed here on Tuesday for a new wheel. She will be docked by the Detroit Dry Dock Co.

Supervising Inspector J. H. Galwey, Boiler Inspector Daly and Hull Inspector Dodge, of the Grand Haven district, were formerly all on one steamer, the Van Raalte. Capt. Dodge was owner and master and the other two were engineers.

The steamer Neosho will go to Milwaukee to be dry docked and rebuilt. This is attributed to the fact that David Vance, representing the insurance companies that have the largest risks on the boat, is largely interested in the dry dock at that place.

The new insurance rates out of this port are as follows: To Cleveland, steam 30 cents, sail 40 cents; to Buffalo and Erie, steam 40 cents, sail 45 cents; to Lake Ontario ports, steam 50 cents, sail 65 cents; to Ogdensburg, steam 55 cents, sail 70 cents; to Montreal, steam 55 cents, sail 70 cents; on 2½ boats, 25 per cent. higher.

Commander O. F. Heyerman seems to have recovered entirely from his paralytic stroke of last summer, and is now the picture of health. He was sentenced to one year's suspension from active service after the loss of the Kearsarge, but some of his friends think this will be commuted to six months by the president, in which case he would shortly receive orders.

Capt. Swain, with the wrecking steamer Favorite, succeeded in getting the steamer Neosho off Spectacle reef and into Duncan City, Saturday afternoon, where temporary repairs will be made, after which the boat will be taken to the Milwaukee dry dock for a rebuild. The wreckers are entitled to much credit for the skill and vigor with which they carried out their work.

Mr. Alfred Cheseborough, for years connected with lake commerce, first as forwarding agent for lines of boats running to Lake Superior, Green Bay, and Chicago, and latterly as owner of vessel property, died at his home here last week. He was well-known to all vessel men, and was respected by them for his probity of character. He was aged 78 years.

Although Mr. McElroy, owner of the speed destroyer passenger boat Uniqne, has done all in his power to get his new boat fairly at work this season, and spared no expense to overcome mechanical difficulties, he is doomed to disappointment, for later defects, principally with the boilers, will prevent her from doing any work to speak of this season. Otherwise the Unique is a success, so far as her builders and owners' plans are concerned.

BUFFALO, N. Y.

Special Correspondence to The Marine Record.

On Tuesday afternoon the big passenger steamer North West was taken the Tifft farm, where she will winter.

The Cleveland liners State of Ohio and State of New York are still running and doing good business. The New York will probably be taken off the route in a week or two.

The receipts of flour are getting up to large proportions, 141,000 barrels having been discharged here in two days, and the briskness is likely to continue. It is expected that lively grain receipts will now set in for the balance of the season.

Regarding shipments of grain from Chicago to Oswego, it will be found that in order to gain anything at the published rates via. Oswego, the transfer will need to be made for next to nothing. If Oswego wants to do business for fun for the sake of an idea, here may be a chance.

The new marine elevator which was commenced here only about sixty days ago, is now completed. It has a capacity of 650,000 bushels, and grain is already being stored in it. The lumber entering into its construction, which was well seasoned, is said to be sufficiently dry to warrant taking grain in for winter storage.

A meeting of the executive committees of the commercial associations of this state has been called for Friday in the president's room of the New York Produce Exchange. It is the object of the meeting to furnish the electors of the state with information that will enable them to vote understandingly on the canal amendment to the State Constitution, which is to be passed upon at the November election. This amendment gives the legislature authority to improve the canals. Last year 4,331,963 tons of freight, valued at $154,831,094, were carried by the canals of this State, and those interested in the grain trade and the transportation of coarse freight predict that this quantity can be doubled as soon as the Erie and the Oswego canals are deepened to nine feet, and the Champlain canal deepened to seven feet. It is also asserted by advocates of the proposed amendment that rates of transportation would be reduced fully one-third if these improvements were made, which would mean a saving to consumers, it is estimated, of several millions of dollars annually.

Exception is taken to the marine dispatch from Cleveland, dated October 8, relative to the action of the underwriters in sending the Neosho to Milwaukee, as it does injustice to David Vance & Co., of Milwaukee, who represent underwriters having considerable interest in the vessel. The facts are that the cargo of the vessel was consigned to the Illinois Steel Co., of South Chicago. The same company owns a plant at Milwaukee and can use the ore to quite good advantage at the last named place. Through the intervention of Vance & Co., it was arranged that the cargo should be received at Milwaukee. This saves the cost of steam pumps and other expenses, which would amount in the aggregate to a considerable sum. Should the steamer go to South Chicago to discharge her cargo, it would be necessary to take her to Milwaukee for repairs, because the facilities at Chicago for repairs of this character are rather limited. In fact, it is stated by those competent to judge that the shipbuilding and dock yard facilities at Chicago are precisely what they were thirty or forty years ago, and will be until the Chicago Ship Building Co. complete their large new dry dock. Messrs. Vance & Co. are acting for all the underwriters and are doing what is for the benefit of all concerned, and whether or not they are interested in the Milwaukee Dry Dock Co. has no bearing in the present case, inasmuch as their course is guided by the best interests of the underwriters whom they are serving, as well as the assured, whose interests are practically identical.

CLEVELAND, O.

Special Correspondence to The Marine Record.

The steamer V. H. Ketcham is to have some calking done on her this week.

The schooner Aberdeen has been docked in the Ship Owners' Dry Dock for a new rudder.

The light-house tender Haze, Capt. John Baxter, arrived at this port on her inspection tour on Tuesday.

The dry docks have been fairly busy this week, the steamers H. A. Tuttle, A. Everett and St. Paul were each docked for repairs.

The schooner Lone Star which arrived at this port leaking several days ago, has been libeled for tug bills, divers' services and seaman's wages.

Capt. Campau, late of the North West, will take charge of the large new freight steamer recently launched by the Globe Iron Works Co., and now nearly ready to sail.

The freight steamer now being completed at the yards of the Globe Iron Works Co., which has been chartered by the Northern Steamship Co., will be ready for business the early part of next week.

Mr. John Corrigan has purchased the small steamer Transfer from Charles Gatesman and A. J. Scott, of Toledo, the consideration being $6,000. The Transfer was built at Saganaw in 1888, and measures 177 gross tons.

The steamer Neosho released a few days ago from her stranded position on Spectacle Reef is to undergo a thorough overhauling and repair at Milwaukee. Great credit is due Capt. Mart Swain of the wrecking steamer Favorite for his successful work on the Neosho.

The repairs to the steel steamer Republic were completed at the Ship Owners' Dry Dock, by the Globe Iron Works Co., on Tuesday, and she at once cleared for Lake Superior. The schooner San Diego was docked to have a leak stopped.

Indicating the neglected state of the river at this time was the experience of the ore loaded steamer Iosco, on Monday. This vessel drawing only sixteen feet, consigned to the Corrigan blast furnace, was detained for several hours through grounding just above the Central Viaduct and below the Center street bridge. At least sixteen feet ought to be taken up the river a short distance from the entrance.

The wages of engineers, mates and cooks on steamers were left at the old rate, made on March 13, by the finance committee of the Lake Carriers' Association.

On the first class boats engineers' wages are $100 for chiefs and $70 per month for seconds. On the second class boats the chiefs' wages are from $75 to $90 and the second $60. In the third class boats, with high or low pressure or compound engines, the wages of the chief are $60 to $75 per month and the seconds at $50. First and second mates and cooks are respectively $50 to $70, $35 to $50, and $35 to $50.

Capt. George Washington Jones, a well known pioneer citizen of the West Side, died on Tuesday evening at his home, No. 326 Pearl street, aged 82 years. He was in fairly good health until a short time before his death. Capt. Jones was one of Cuyahoga county's pioneers' having been born in or very near Cleveland. He was for some years a master on the lakes, his last command being the schooner P. S. Marsh. He was also a pioneer shipbuilder at this port and was well known to all of the older school of marine men. He owned vessel property at the time of his death, having shares in the Minch fleet and the Hutchinson boats. He is survived by his wife and by five children.

GRAND HAVEN, MICH.

Special Correspondence to The Marine Record.

A lighter with a wrecking outfit on board in tow of the tug George Parker, of Detroit, sank in the lake one mile from shore, off Muskegon, early on Tuesday. The tug put into this port after losing the lighter. The tug was in charge of Capt. John Cassady, of Bay City, and the outfit was owned by Capt. James Reid, the Bay City wrecker. It was on its way from Michigan City, where it had been at work on the wreck of the steamer F. W. Wheeler. On the lighter was a large derrick, engine, boiler and machinery and much lead pipe taken from the Wheeler. The outfit was valued at $10,000. The lighter foundered in thirteen fathoms of water and it is said that it cannot be recovered.

OCTOBER EXPIRATION OF LICENCES.

The following is a list of steam vessels whose inspection certificates expire during October, 1894, in the local district of Chicago:

Cisco	Oct. 4	Yosemite	Oct. 12
El Valle de Anahuac	" 12	Peerless	" 14
		Flo	" 18

VISIBLE GRAIN SUPPLY.

The stocks of grain in Chicago elevators last Saturday evening were 25,498,000 bushels of wheat, 1,834,000 bushels of corn, 1,464,000 bushels of oats, 162,000 bushels of rye, and 40,000 bushels of barley. Total, 28,998,000 bushels of all kinds of grain, against 23,885,000 bushels a year ago. For the same date the secretary of the Chicago Board of Trade states the visible supply of grain in the United States and Canada as 73,614,000 bushels of wheat, 3,905,000 bushels of corn, 8,650,000 bushels of oats, 383,000 bushels of rye, and 2,820,000 bushels of barley. These figures are larger than the corresponding ones a week ago by 2,201,000 in wheat, and smaller by 400,000 in corn. The visible supply of wheat for the corresponding week a year ago increased 2,747,000 bushels.

THE ST. LAWRENCE ROUTE.

The St. Lawrence route as a deep water connection with the coast has many able champions and advocates in the North West even if the gateway is partly through Canadian territory.

A. L. Crocker, president of the Minneapolis board of trade, who was one of the northwestern representatives to the recent waterways convention at Toronto states that when he left Minneapolis to attend the convention it was with more or less doubt in his mind as to the feasibility of deepening the St. Lawrence canals, thereby opening a new waterway to the ocean, but after he reached there, and had the matter placed before him in its proper light, he not only thought it feasible, but extremely probable, using his words: "I am converted."

"As chairman of the executive committee," he added, I shall probably be asked to apply to the government for a commission to be appointed to thoroughly investigate the plans and to see if proper arrangements can be made with Canada. To my mind I think this question of waterways is one of greater importance to the northwest than any other that is before us at the present time. It has reached a stage that something must be done to relieve the great pressure of business that is congesting the lower end of the lakes. We have simply got to have an outlet and either one of the plans that have been presented will furnish us with a direct waterway to the ocean.

CLEVELAND'S ORE AND COAL TRADE.

Receipts of ore at the port of Cleveland for the present season have reached almost 1,300,000 tons according to cargo figures, and when the usual 1 per cent is added the totals will probably exceed that amount. The ore was received as follows, by months, from the various ore-shipping ports:

Month.	From Escanaba.	From Ashland.	From Two Harbors.	From Marquette.	From Duluth.	Total.
April	4,694	2 100	9,220	3,400	.....	19,414
May	19,323	58,575	65,166	60,883	4,300	208,247
June	23,791	66,375	79,353	92,094	21,465	283,075
July	36,999	49,096	58,614	141,054	22,218	307,981
August	37,874	43,112	41,990	77.836	16.363	217,175
September	35,473	38,777	61,217	77,947	47,345	260,759
Total	158,154	258,035	315,560	453.211	111,691	1.296,651

Coal shipments, according to custom house figures, which are pretty nearly correct this season, amount to less than half a million tons up to October 1, which indicates a heavy decrease in the season's shipments as compared with last year. The fueling figures, when compiled, will show a much heavier business in that line than last year. Detailed coal figures for the first six months of the season are as follows:

Month.	To Lake Superior.	To Lake Michigan.	To other Ports.	Total.
April	32,410	30,061	23.761	86,232
May	1,385	1,600	2.173	5,158
June	5,410	2,225	4,539	12,174
July	15,981	34,003	29,079	79,063
August	65.265	50,016	34,230	149,511
September	66,126	43,815	27,818	137,759
Total	186,577	161,720	121,600	469,897

NEW CARD OF WAGES.

At a meeting of the finance committee of the Lake Carriers' Association, held at the office of the president, Capt. James Corrigan, Cleveland, O., on Tuesday afternoon, President James Corrigan, Secretary C. H. Keep and Treasurer George P. McKay were delegated to go to Washington as soon as the secretary can arrange for a meeting with the light-house board, and present the petition, which has been signed by all the members of the association, asking for the new aids to navigation, already published, and for which appropriations will be sought from the next congress.

Although there has been no advance in freights generally, the finance committee decided to advance the wages of seamen, as is usual in the fall of the year. The wages of firemen, wheelsmen, lookouts, deck hands and oilers on steamers, and mates, cooks, seamen and boys on consorts are from $5 to $7.50 per month higher than the late schedule. The old and the new rate is contained in the following table. No change was made in the wages of engineers, mates or cooks on steamers. The new schedule takes effect October 15:

ON STEAMERS.

Capacity.	Card of Mar. 13.	Card of Oct. 15.
Firemen	$25.00 to $30.00	$30.00 to $37.50
Wheelmen	25.00 to 30.00	30.00 to 37.50
Lookouts	20.00 to 30.00	30.00 to 37.50
Deckhands	12.00 to 15.00	15.00 to 20.00
Oilers	25.00 to 30.00	30.00 to 37.50

ON CONSORT AND SAIL.

Capacity.	Card of Mar. 13.	Card of Oct. 15.
First Mates	$30.00 to $45.00	$40.00 to $50.00
Second Mates	25.00 to 35.00	30.00 to 40 00
Cooks	25.00 to 30.00	30.00 to 37.50
Seamen	25.00 to 30.00	30.00 to 37.50
Boys	12.00 to 15.00	15.00 to 20.00

SHIPMENTS of iron ore from Ashland, Wis., for last week were 71,183 tons, and for the season 1,490,282 tons. Of lumber, for the month, 22,615,000 feet, and 280,000 lath were shipped.

STAGE OF WATER AT ST. MARY'S FALLS CANAL.

DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

Depth of water at the St. Mary's Falls Canal for the week ending Oct. 11, 1894:

Oct.	4	8 a. m.,	14	feet	9	inches.	8 p. m.,	15	feet	0	inches.
"	5	"	14	"	11	"	"	14	"	11	"
"	6	"	14	"	11	"	"	14	"	8	"
"	7	"	14	"	7	"	"	14	"	10	"
"	8	"	14	"	10	"	"	15	"	1	"
"	9	"	14	"	8	"	"	14	"	9	"
"	10	"	14	"	10	"	"	14	"	10	"
"	11	"	14	"	9	"	"				

ITEMS FROM THE LOG BOOK.

Five schooners have already gone into winter quarters at Sheboygan, Wis.

Carl Anderson has been appointed keeper of the Sturgeon Bay Canal life-saving station.

Capt. Frick of the steamer Fedora, who was taken to the hospital at Duluth on account of a paralytic stroke, has so far recovered that he is able to be out.

Daniel Gerard, of Amherstburg, Ont., offers a reward of $50 for the recovery of the body of his brother, Capt. P. Gerard, who was drowned in the Ohio-Ironton disaster.

In connection with the Neosho disaster a sailor's superstition comes in. It is gravely related that just before she left the ore dock at Duluth the rats were seen jumping from the boat to the dock.

Michael J. Cooney and Miss Alice Erickson were married on Thunder Bay Island, Saturday night. Cooney is the newly appointed light-keeper and the marriage was the first ever held on the island.

Capt. Samuel Thornton, of the schooner William Aldrich, dissappeared at Chicago a week ago. He was on his way to his boat, and had $300 in his possession when last seen. He lived in Sturgeon Bay.

The cargo of the schooner Olive Jeanette, 1,907 tons of iron ore, was discharged and put into cars in fourteen hours at Toledo, O., three derricks being used. This beats the record for handling cargo at Toledo.

A survey was made this week on the steamer H. E. Runnels, in the drydock at Port Huron, by Capt. J. M. Jones, of Detroit and Thomas Dunford, of Port Huron. The Runnels struck on a rock in the Niagra river. The survey showed damage to the amount of nearly $1,200.

Owing to the high elevator charges at Buffalo, Oswego is again coming to the front as a grain receiving port, and with cheap canal rates to New York, as well as moderate elevator charges, it is thought that considerable grain will be diverted this fall to the old-time grain route via. Oswego.

Major Sears, United States engineer, opened bids on Wednesday for the construction of the pier revetment in Lily pond, Portage lake. The highest bid was $13 per linear foot, and the lowest $7.45, by McKenzie, Somerville & Murphy of Duluth, who get the contract, the total amount being $22.000.

Engineer Ray, of the steamer Canisteo, lost an eye on Monday by having it struck by a glancing bullet from the gun of a man named Wyckoff, who was hunting ducks. The Canisteo, which loaded lumber at Chassell, Mich., for Cleveland, was passing through Portage Entry, when the stray bullet struck the engineer.

The steamer Nyack will be placed on the Lake Michigan winter route between Milwaukee and Muskegon. There is a bad bar making between the piers at Muskegon. Whether it is on account of the way in which the piers are built or the prevalence of westerly weather it is difficult to say, but the port or the entrance thereto is not what it should be, especially for winter commerce.

The Great Northern Transportation Co., of Collingwood, Ont., engaged in the passenger and package freight trade on Georgian Bay, and owning the steamers Atlantic, Baltic, Pacific and Northern Belle, are about to begin work on a new wooden steamer, to be 220 feet in length over all, with 205 feet keel, 34 feet beam, 12 feet molded depth and 11 feet draft with upper cabins for passengers and capacity for about 400 tons of package freight, to be completed by May 1, 1895.

The Neosho jettisoned 1,000 tons of her ore cargo while ashore on Spectacle Reef. Her steering apparatus and shoe are said to be uninjured. Upon reaching Milwaukee the Neosho will be docked and her leaks stopped, so that the services of the steam pumps can be dispensed with. She will then be discharged of the remainder of her ore cargo, after which she will again be drydocked for a final damage survey. It will then remain for the underwriters to determine what disposition shall be made of the craft, whose condition, after the experience she has been through, certainly reflects great credit upon Quayle's Sons her Cleveland builders.

A BOILER EXPLOSION ON A TUG BOAT.

(From the Scientific Machinist.)

We present herewith, some particulars of the boiler explosion on the steam tug Rambler, which occurred recently while the boat was tied up at Pocket Dock, New Haven, Conn. An hour previous to the explosion the Rambler had towed a four-masted schooner down the bay, and she had returned to the dock to meet some friends of Capt. Hewitt, who were to go down the bay on a pleasure excursion. Owing to some very fortunate miscalculation the expected party missed a train at Hartford, and were obliged to wait over until after the explosion. Except for this incident they would have been on the boat at the time the boiler blew up, and would undoubtedly have been killed. While awaiting the arrival of the party the captain of the Rambler had gone to the office of her owners, and the fireman was away after some paint. About fifteen minutes before the explosion the engineer of the Rambler went aboard the tug Walsh, which was secured to the same dock. The only person remaining on the Rambler was Steward F. W. Wells.

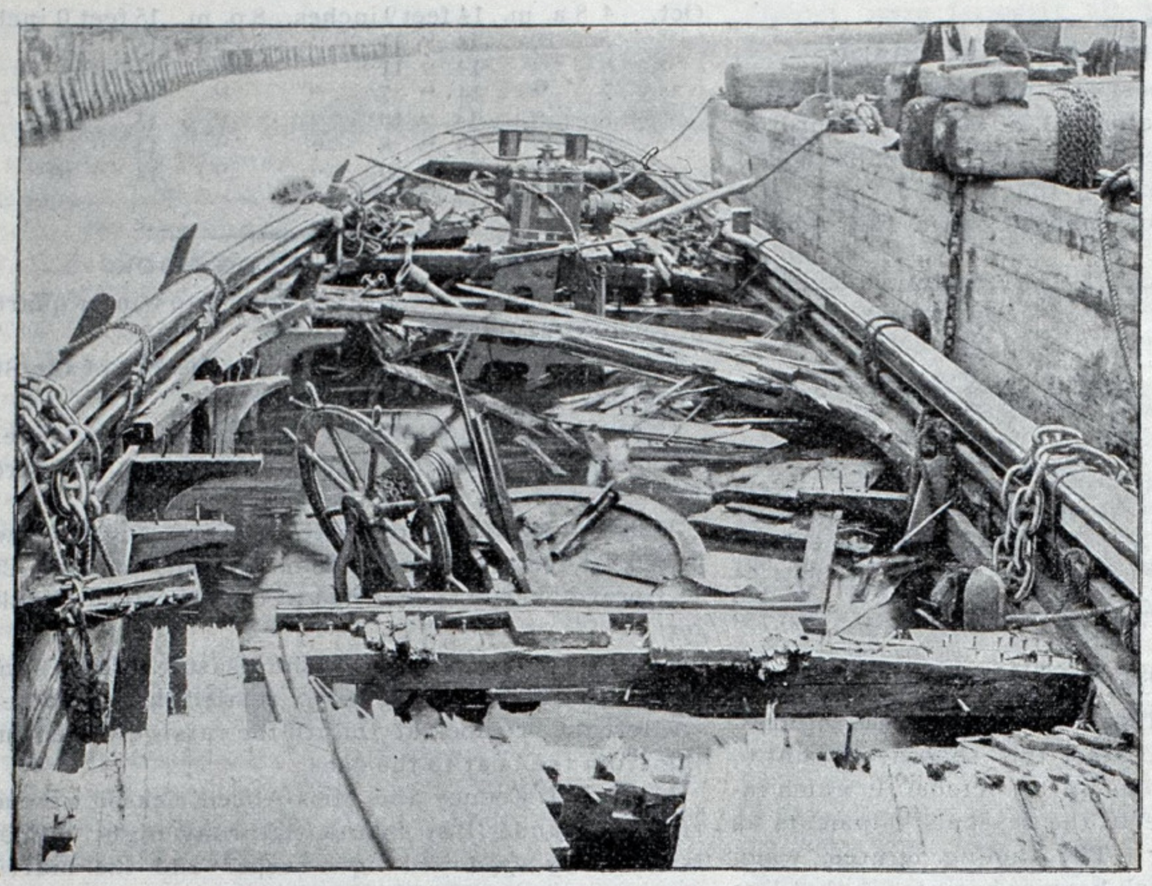

FIG. 1.—THE RAMBLER AFTER THE EXPLOSION.

The explosion wrecked the Rambler, blowing the upper part of her to atoms, some of the fragments being afterwards found at immense distances from the dock where the boat was moored. The hull was not damaged so much, but a hole was opened in it and the vessel sank almost instantly. Fig. 1 shows the appearance of the Rambler after she had been raised from the bottom. Engineer Weimer and Merritt Carney, the assistant engineer of the Walsh, were sitting on the deck of that vessel, near the stern. Both men were very seriously scalded about the legs, and Carney was also scalded on the body. They were removed to the hospital. Weimer was blown into the water. Patrick O'Hara, who was unloading rail road ties 150 feet away, was struck in the head by a flying scrap of iron, and a fellow laborer named Harrigan was also injured by a piece of wood. Both of these men will recover, however. The body of the unfortunate steward, Wells, was not found for several days. It was eventually found in the water near the scene of the explosion. It was found that every bone in his body was broken, although there were no external marks of injury except a slight bruise on his forehead over the right eye. It is probable that he was killed instantly by the concussion.

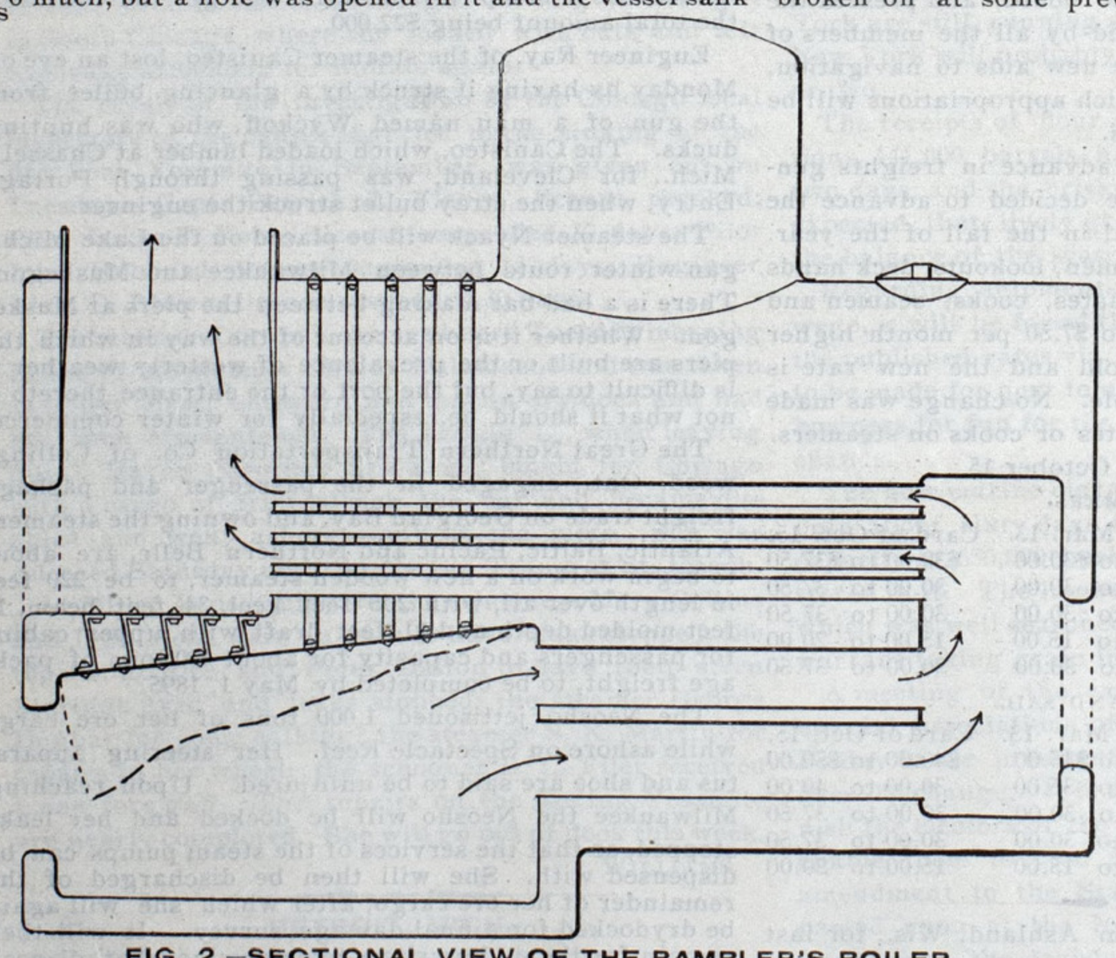

FIG. 2.—SECTIONAL VIEW OF THE RAMBLER'S BOILER.

The boiler of the Rambler is shown in section in Fig. 2. It contained two furnaces, which were separated by a water-leg. The explosion was caused by the failure of the crown-sheet of the right-hand furnace as indicated by the heavy dotted line in Fig. 2 and shown in detail in Fig. 3, which is a view of the exploded boiler as seen from below. An examination of the boiler indicates that the explosion was due to improper and defective bracing of the crown-sheets, especially of the one over the starboard furnace. Five of the braces at the right-hand rear corner of this crown-sheet had the appearance of having been broken for a considerable time, and three others had been broken off at some previous time. This left an unbraced area of about 252 sq. inches. About two feet beyond these there were three braces which were made straight, 2″ x ½″, with the lower ends riveted to the side or quarter radius of the fire-box crown, and the upper ends twisted through a quarter turn and secured above by pins to two angle irons that were riveted to the wagon-top of the fire-box. Two of these, and one similar brace near the front, appeared to have had no pins before the explosion. The plate first parted at the unbraced area mentioned above, where the braces had been broken previously. The rupture passed across the top of the fire-box to the front, and the front half of the crown-sheet was torn out bodily, and has not been found. Of the rear half of the crown-sheet one part turned up and the remaining portion turned down to the side of the fire-box. There was no indication of low water. The safety-valve was so wedged into the debris that we could not get at it for examination. Engineer Weimer stated that there was plenty of water in the boiler, and that the steam-gauge indicated 80 pounds.

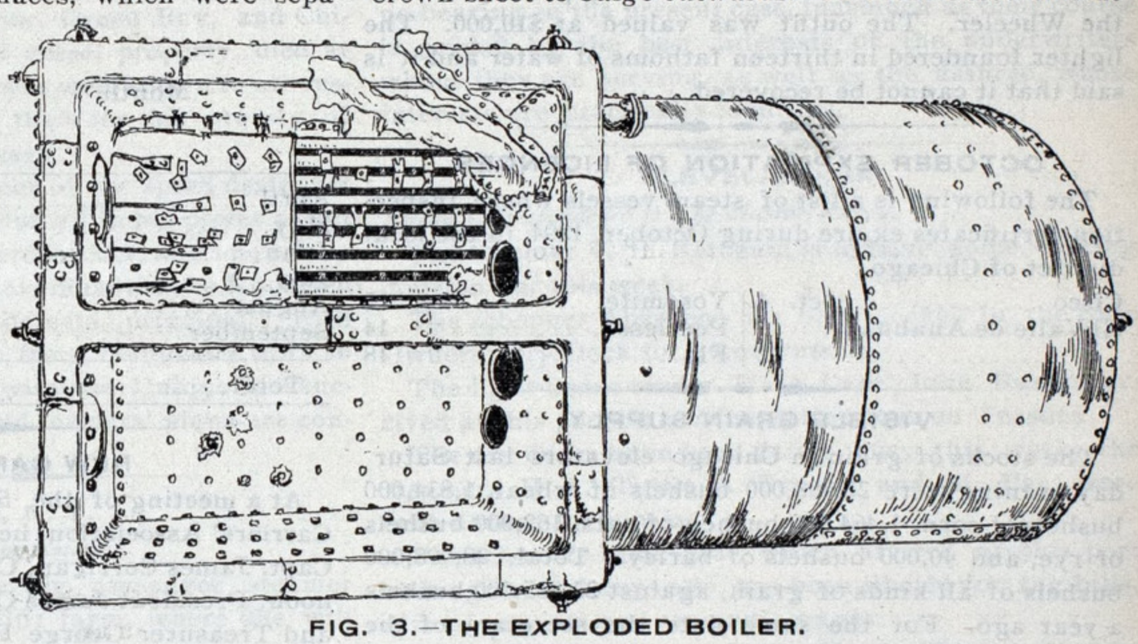

FIG. 3.—THE EXPLODED BOILER.

It will be seen from Fig. 2 that flat Z-braces were used on the crown-sheet. This form of brace is inherently weak, and should never be used for such purposes.

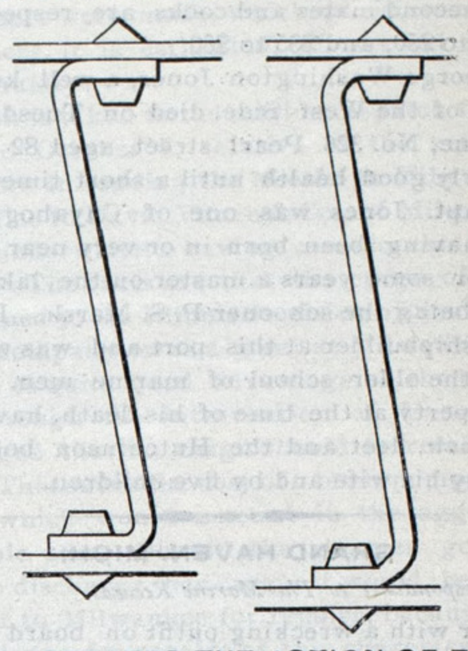

FIG. 4—ILLUSTRATES THE ACTION OF Z-BRACES.

The solid crow-foot brace is superior to it in every way. In Fig. 4 we present two views of the Z-brace, which will illustrate the cause of its weakness. The left-hand view shows the brace as first put in, while the right-hand view shows what happens to the brace when a pull comes on it. The ends are drawn away from the sheets, and the brace straightens out and allows the crown-sheet to bulge outwards. In most cases this deflection of the crown sheet will not be sufficient to cause an immediate fracture; but as the pressure in the boiler varies the brace will bend back and forth, and in the course of time it is almost certain to crystallize and fracture across the line of greatest bending. This action is well illustrated by the common process of breaking a wire by repeatedly bending it back and forth with the hands. The action in the case of the Z-brace is precisely the same, and that is why we say that this form of brace is inherently weak.—*The Locomotive.*

NO CAUSE FOR COMPLAINT.

I—— W—— was a lieutenant in the navy in the days when the drum "rolled to grog."

W——, though otherwise an excellent officer and capital sailer, was often in trouble on account of his devotion to the bottle and was for a long time unemployed.

At last, having professed a desire to reform, his friends, who were influential at Washington, obtained for him the command of a smart little vessel, but upon one condition, and that was that he should take no spirituous liquors to sea with him.

Old I—— promised; and kept his promise, like an officer and a gentleman, but, after "fooling with port and sherry and other trifling drinks," and having been at sea for some weeks, he felt the desire for a good solid drink of old whisky come strongly upon him.

One day, at noon, as he was walking the quarter-deck, the drum rolled and he walked forward to the tub where the grog was being served and said "What's this complaint I hear about the whisky? Give me a tot!"

The copious tin measure was at once filled and handed back to the commanding officer, who threw his head back, swigged it off, shut one eye and then said: "Give me another! I drink it so seldom that I may be mistaken. No! very good whisky! no cause for complaint!" And off he walked with a good half pint under his belt. And the best of the joke was that there had been no complaint of the whisky.—*Ex.*

CORRESPONDENCE.

☞We do not hold ourselves responsible in any way for the views or opinions expressed by our correspondents. It is our desire that all sides of any question affecting the interests or welfare of the lake marine should be fairly represented in THE MARINE RECORD.

SUBSIDENCE OF LAKE MICHIGAN.

FERRYSBURG, MICH., Oct. 9, 1894.

To the Editor of The Marine Record:

The question of the lowering away of the surface of Lake Michigan, as a result of the opening of the sanitary canal from Chicago to the Illinois River, is now agitating the minds of those concerned in the movement of deepening the waterways of the lakes. Not knowing whether the question as to the amount of subsidence due to the opening of the canal has ever been discussed by the engineers of that work, I offer the following treatment of the subject, believing it will be of interest to many:

The problem is indeterminate at present for want of reliable data. We cannot answer the question of ultimate subsidence till we know the relation between the volume of inflow as compared with the volume of outflow, and this we cannot know till we have a complete survey of all the inflowing streams—a complete "guage" of everything flowing into the lake. But this we have not got, nor do we expect it in the near future.

Nevertheless, we are not entirely without remedy. We may employ that of the Yankee peddler, who, not being an expert in fractions, when computing the price of his sales wherein fractions were involved, adopted the method of guessing—shutting up one eye for good results, or both eyes where great precision was required.

A person acquainted with some of the principal rivers and smaller streams flowing into Lake Michigan, by allowing their mean cross sections and velocities of flow for the different seasons of the year, then consulting the maps and assigning cross sections to all the streams according to their length—not forgetting to give a liberal allowance for the thousand and one small streams not noticed on the maps—may make a good "guess" as to the amount of inflow from the streams. By this method I judge that the inflow is between two and three times the outflow of the canal, which is calculated at 600,000 cubic feet per minute.

The effect of this inflow is to raise the level of Lake Michigan above that of Lake Huron, till the current generated by the difference of head will just deliver the inflow of all the rivers into Lake Huron. This difference of head is known to be 5½ feet.

Then, allowing the annual precipitation to be equal to the annual evaporation, which is probably not far from the fact in the case, and regarding the 5½ feet difference of level between the two lakes as unity, our problem becomes very simple.

Assuming that the inflow is between two and three times the outflow through the canal, then the remaining outflow to be made through the Straits is between two-thirds and one-half the present outflow. Then, because the channelway remains the same, the velocity of the current resulting from the new head must be as the volume to be discharged. Assume two-thirds the present outflow as the amount to be discharged, then as the velocity follows the law of falling bodies, the new head will be simply the square root of two-thirds, which is .82 of unity—*i. e.*, 82 per cent of 66 inches, or 54 inches. That is to say, the new head, to discharge the two-thirds of the present inflow, must be 54 inches, and therefore the permanent subsidence of the surface of the lake from its present level, other conditions remaining the same, should be 12 inches. In the same manner, if the canal should discharge one-half the present inflow, the subsidence would be 19 inches.

But how long will it take to run the lake down this 12 or 19 inches? Regarding the surface of the lake as 20,000 square miles, which is the area geographers give it, the outflow of the canal would commence to lower the lake at the rate of 9 inches per year; but this rate falls off as the limit of subsidence is reached, thus taking nearly three years to lower the lake 12 inches—or more than four years to run down the 19 inches—the canal discharging all the time at the rate of 600,000 cubic feet per minute. If the outflow by the canal should equal the total inflow of all the rivers and creeks, then, at the end of 15 years, the surface of the lake would have subsided 5½ feet, or to the level of Lake Huron.

But will it be necessary to use so much water to keep the sewage clear? If the expense could be limited to 300,000 to 400,000 cubic feet per minute, with occasional flushings—a volume greater than that of the largest river that flows into the lake—the ultimate subsidence would be limited to six or eight inches.

H. C. PEARSONS.

WHAT CAUSES THE DISTURBANCE?

ST. IGNACE, MICH., October 9, 1894.

To the Editor of The Marine Record:

As a reader and an old subscriber of THE RECORD, I desire to inform the sailing community that one of the masts of the schooner William Young, sank in the Straits two or three years ago, has just now come to the surface and stands about ten feet above water, hanging presumably by the rigging attached thereto. Knowing that THE RECORD has taken a deep interest in all that concerns the general hydrographic work of the Great Lakes, I would like to know to what may be attributed the recent disturbances in that depth of water which this vessel was sunk in (about 160 feet) so as to to bring her spars at this time to the surface.

L. RYERSE.

MILWAUKEE MARINE.

The reports received by the collector of customs for the Milwaukee district for September show a great increase over September of last year in the number of arriving and departing boats, and in the amount of tonnage. The figures are as follows:

Clearances for September, 1894—Milwaukee, 594, tonnage 464,068; Sheboygan, 104, tonnage 52,750; Manitowoc, 129, tonnage 63,826; Marinette, 85, tonnage 20,356; Green Bay, 126, tonnage 44,691; Racine, 99, tonnage 54,110; Kenosha, 26, tonnage 4,949; Kewaunee, 23, tonnage 7,528; Sturgeon Bay, 312, tonnage 90,887; total clearances, 1,478; total tonnage, 803,165. In 1893 for the same month the total clearances aggregated 682,154 tons.

Arrivals for September, 1894—Milwaukee, 646, tonnage 439,197; Sheboygan, 106, tonnage 52,983; Manitowoc, 130, tonnage 64,549; Marinette, 84, tonnage 20,326; Green Bay, 122, tonnage 40,802; Racine, 102, tonnage 54,311; Kenosha, 26, tonnage 4,949; Kewaunee, 23, tonnage 7,528; Sturgeon Bay, 338, tonnage 96,149. Total arrivals, 1,577; total tonnage, 780,794. The total arrivals in the district for the same period last year amounted to 661,409 tons.

THE WORLD'S TONNAGE.

According to the latest supplement of Lloyd's Register of British and Foreign Shipping, the tonnage of the world is divided as follows:

NATIONALITY.	STEAM VESSELS. NO.	STEAM VESSELS. TONS. NET.	STEAM VESSELS. TONS. GROSS.	SAIL VESSELS. NO.	SAIL VESSELS. TONS.	TOTALS. NO.	TOTALS. TONS.
British { United Kingdom	6,322	5,768,473	9,307,783	2,939	2,499,227	9,261	11,807,010
British { Colonies	863	322,835	530,570	1,536	632,371	2,399	1,162,941
America, United States of	610	639,244	887,766	2,704	1,283,693	3,314	2,171,459
Austro-Hungarian	162	135,977	222,348	169	80,270	331	302,618
Danish	253	121,026	198,577	562	134,654	815	333,231
Dutch	207	209,079	307,145	254	130,034	461	437,179
French	555	471,383	891,720	623	197,820	1,178	1,089,540
German	912	826,221	1,214,830	853	569,895	1,765	1,784 725
Italian	224	202,397	318,706	1,052	453,053	1,276	771,759
Norwegian	559	265,374	403,813	2,578	1,265,274	3,137	1,669,087
Russian	248	135,820	229,542	821	247,130	1,069	476,672
Spanish	392	289,232	449,044	368	98,314	760	547,358
Swedish	535	165,803	226,769	914	271,235	1,449	498,004

The returns of steamers totally lost or condemned for the quarter beginning on the 1st of April and ending on the 30th of June (as reported up to the 8th of September) show that 2 steamers of 4,611 net and 7,309 gross tonnage were abandoned at sea; 9 of 11,268 net tons were broken up or condemned; 3 of 1,345 tons burnt; 11 of 6,247 lost through collision; 2 of 2,134 tons foundered; 2 of 3,672 tons reported missing; and 33 of 23,130 tons wrecked; making a total of 62 vessels of 52,407 tons. The bulk of these are of British nationality, the United Kingdom and her colonies heading the list with 35 vessels of 37,896 tons. As regards sailing vessels, 16 of 6,830 tons were abandoned at sea; 26 of 9,426 tons broken up or condemned; 8 of 6,487 tons burnt; 13 of 4,134 tons lost through collision; 10 of 2,068 tons foundered; 3 of 595 tons lost; 18 of 8,592 tons missing; 63 of 25,425 tons wrecked, making a total of 157 vessels of 63,557 tons. No vessels under one hundred tons are noted, and the lake fleet is not taken into account. The bulk of these losses are Norwegian and American.

A HANDSOME NEW STEAM YACHT.

A new steam yacht to be built by Chas. L. Seabury & Co., of Nyack-on-Hudson, N. Y., for Mr. F. C. Fowler, of Connecticut, has the following dimensions: Length over all, 120 feet; length water line, 97 feet; beam, 16 feet; depth, 9 feet; draught of water, 6 feet 6 inches. This yacht is to be composite built, viz.: steel frames, deck timbers, keelsons, etc., and wood planking in two thicknesses of yellow pine. The yacht is to be flush deck, schooner rigged, with a mahogany house on deck 16 feet long, to be used as a dining room, with bridge to steer from overhead.

The accommodations will be first-class. She will have two guest staterooms, one with single berth, and one with double berth. The owner's stateroom will be 6½ feet long, and extend full width of vessel, with bath tub, water closet, wash basin, dressing case on one side in separate compartment. There will be a fine large salon with seats arranged as berths; large galley, captain's room, crew's quarters, crew's toilet room, lazarette, etc. The yacht will be first-class in her appointments throughout, and will have everything aboard of her right up to date. She will be thoroughly modern in every way.

The machinery will consist of a Seabury expansion engine and two Seabury patent safety water tube boilers of latest design, developing sufficient power to drive the yacht at a guaranteed speed of 16 miles per hour for three consecutive hours over a measured course.

The yacht will carry an 18-foot gig, an 18-foot launch, a 14-foot cutter and a 14-foot dinghey. She will be completed and ready for delivery by June 1st, 1895.

BRITISH SHIPPING OUTLOOK.

Judging from the shipping circular issued by H. E. Moss & Co., of Liverpool, this month, the building and freight outlook on the other side is looked at in anything but a favorable light.

Messrs. Moss & Co. state in part as follows:

"We deeply regret our inability to speak more hopefully of shipping property than we did in our last circular. The long continued depression in freights not only still exists, but is more strongly accentuated.

This fact has had a very marked effect on building, and comparatively few orders have been given out since January except from established and powerful lines, and as a result shipbuilders are exceedingly anxious to secure them and have made large sacrifices by quoting unusually low prices. This applies to steamers only, as orders for sailing ships (except a few for foreign account) are almost unknown. Prices for building have not varied very much, builders' quotations for several months past having reached a vanishing point—as far as profits are concerned—and several yards are now closed for want of orders.

One good feature, however, is the passing of the new American tariff bill, which has already created a better feeling, not only in the States, but in this country, and we have no doubt it will have a beneficial effect all over the world, and thus contribute in resuscitating our former prosperity. A still further improvement in the value of silver would also help in this direction.

The supply of obsolete tonnage seems inexhaustible; many have been sold at breaking up prices, but many more are still available, and we repeat our advice to holders of this class of property, viz.: to get clear of it at any price, and as quickly as possible.

The increasing number of foreign owned steamers in the special trade of the United Kingdom is a factor that should engage the careful attention of our board of trade, and we hope to see the subject fully ventilated in the House of Commons early in the next session, and that it may eventually lead to some modification of recent legislation.

THE MARINE RECORD

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CLEVELAND, O., OCTOBER 11, 1894.

UNLESS something comes along to upset present calculations, the end of this month will witness the launch of the highest classed and largest merchant ship ever built in the United States. The occasion will be the launching from the shipyards of Messrs. Cramp's, Philadelphia, of the new American liner St. Louis, sister ship to the St. Paul, which is to be launched later. These boats will be placed in the Atlantic trade to run with the foreign built sister ships Paris and New York and they will be classed by the American Shipmasters Association of New York in the "Record of American and Foreign Shipping," having been built to the highest rules issued by the Association for ocean tonnage.

THERE is no doubt that the detail as chairman of the U. S. Light-House Board is one to be coveted by a naval officer, and with the retirement in February next of the present incumbent, Rear-Admiral Greer, there will be some great skirmishing done to secure this sinecure. Even military men are after the plum, though why soldiers should aspire to a distinctively nautical office it is difficult to explain, except upon the grounds of keeping a lookout for a soft snap, which, under forced conditions, might fall into their lap. However, Admral Walker having refused the superintendency of the naval academy, he is now stated as the naval candidate for chairman of the Light-House Board. Whether he will secure it or not is another question, which will be solved in the course of the next few months.

LOOKING at the steam floating property of to-day and comparing it with the construction and equipment that obtained less than a decade ago one can not but be surprised at the rapid advancement which has been made in the adoption of means and methods to facilitate and economize the transportation of freight and passengers by water. Particularly is this so in respect to the machinery, as to-day one can hardly find such a thing as a compound engine except in special cases. Previous to the time we have mentioned all steamers were fitted with the compound type of engines, yet now we find them with some one of the multiple expansion types. This change has been brought about to effect an economy of about 15 per cent. in the fuel bills, and this too at an expense, or initial cost, which at first sight would not seem to warrant the changes being made in older boats from compound to triple and quadruple expansion engines. At the present time the minds of inventors seems to have somewhat let up on the engines, and now their entire energies are being devoted to improving boilers, as a result of which we have the different types of furnaces. Serve's tubes, various forced draft systems, feed water heaters, shaking grates, mechanical stokers, and above all the introduction of the tubulous boiler, in addition to which we also find the liquid fuel question coming to the front as a factor of economy in certain classes of tonnage. The foregoing departures all tend to show that much more confidence and reliance is placed upon machinery than formerly obtained in transportation by water, with the result, that masts, sails, rigging and all former hand purchases used in steering, for working the ground tackle, handling ship and cargo are rapidly becoming obsolete in this age of steam and electricity.

THE HARBOR AT CLEVELAND.

The outer harbor, the harbor of refuge at Cleveland, is fast making a name for itself that will warn vessels to keep away from the port at a time when shelter is desirable, or if bound to that port to avoid it by seeking the north shore, keeping in mid-lake, or trying to get into some other port. One of the best advised and most experienced masters was taken slightly to task a few days ago by his owners for not going into that port with his cargo during heavy weather instead of looking at the piers and then turning tail to seek an offing or to get a weather shore aboard. The master pointed out the danger of bringing one of the largest and deepest draft steamers on the lakes into the shallow mud hole and attempted to convince his owners that he would either have pounded the breakwater or piers to pieces or gone ashore if he had made the attempt to get into the river. We hope he succeeded in making his point good with his employers, certainly his action was endorsed by practical seamen. On Wednesday night the large steel steamer S. R. Kirby put back to this port for shelter, her master not being so well advised regarding the port as the one mentioned in the foregoing, however he and others will know better in the future for after rounding the west pier and heading well up in the harbor of refuge he found his vessel ashore before his ground tackle would fetch her up. The large schooner Tasmania underwent a similar experience on Wednesday night and it is to be hoped that four figures will express the sum required to to place her as she was before trying to enter a harbor of refuge? If Cleveland is a dangerous port to enter in hard weather, the sooner it is made a safe one the better for its commerce and the foregoing partly shows the reason of being for a committee of the Chamber of Commerce taking a brisk hand in the formerly neglected subject of the state of Cleveland's river and harbor.

It is, perhaps, just in time that the City Council has appointed a committee to act with the Chamber of Commerce in preparing plans for the improvement of the harbor, or rather it is a quarter of a century behind the time, although better late than never. Hitherto it has only been shown that the port is losing trade on account of the congested state of the inner harbor and river, coupled with a lack of facilities to handle vessels and cargoes. Now further startling conditions force themselves into view to the tune of it being a dangerous port to make.

The Cleveland *Plain Dealer*, dealing recently with the tonnage statistics of Cleveland for 1893, very adroitly and pertinently sums up the figures presented by the Commissioner of Navigation as follows: "The total number of vessels on the lakes is given as 3,761, with an aggregate tonnage of 1,261,067 gross tons. Of this tonnage the Cuyahoga district is credited with very nearly one-fifth. While the average tonnage of the 3,761 vessels is 335 gross tons, more than two-fifths of the total tonnage is in vessels of between 1,000 and 2,500 tons. This is 50 per cent more in number and 68 per cent more in tonnage than the aggregate of vessels of this class owned in all other parts of the United States. Nearly one-fifth of the total tonnage of the whole chain of lakes is owned in the Cuyahoga district. Of the six more important customs districts in the lake region that of Cleveland stands far away at the head in every respect. In ownership of tonnage it has 32 per cent more than Buffalo, 36 per cent more than Port Huron, 45 per cent more than Detroit, 150 per cent more than Milwaukee and 192 per cent more than Chicago. In size of vessels the Cuyahoga district is still more to the front. The average tonnage of vessels owned in this district is 906, while in Detroit it is 600, in Buffalo 507, in the Port Huron district 377, in Chicago 260 and in Milwaukee 239.

It has also been shown that that the ordinary expenditure of a good sized steamer during her stay in the terminal port of her voyage was $1,200. That money goes to the benefit of the general business of the port. Cleveland gets the advantage of that $1,200 when that port is the terminus of the voyage. It loses that amount when the vessel seeks another port because of its superior advantages. Hundreds of thousands of dollars are lost in this way yearly and the annual loss will be still greater in the future unless the work of remedying the neglect and mistakes of the past is begun promptly and carried on with unremitting vigor. If anything is required to spur on the efforts of those seeking the best interests of the city, the experience of Wednesday night ought to be sufficient to prevent a repetition of the damaging testimony which will be scattered broadcast over the lakes to the derogation of the port, and, although the funds in the ands of the engineer of the district for breakwater and dredging work is a measly, paltry sum and entirely inadequate for carrying out indispensable improvements, steps can be taken, even at this time, looking towards securing a more liberal appropriation for harbor work at the hands of Congress and so that the outer harbor, the harbor of refuge, may be found one in need and deed, not as it would now appear to be a trap, for the unwary or unacquainted to get into danger and distress.

CANAL ROUTES.

With the advent of so many canal projects for shortening routes and otherwise improving lake commerce, it would be well for managers of large lines of steamers, owners and builders to watch carefully the development of the several schemes now in course of formation and be ready with suitable tonnage to avail themselves of any advantage which might be gained by making an early use of such artificial waterways, as, when the one hundred miles of a canal like the Suez can be successfully used by the finest tonnage afloat, there can be no doubt but that the handful of miles required for a Lake Erie-St. Clair or the Michigan Ship Canal, between Toledo and Michigan City or a point near thereto, might easily become one of the main arteries of lake commerce. Especially is the latter project one which will bear close attention by all interested persons, as it would save over a thousand miles in distance between Chicago and Lake Erie, with a corresponding advantage between adjacent ports. Furthermore, it is stated by experts that such a canal built for modern tonnage to traverse would cost but ten to twelve million dollars, and a further inducement looking to the successful completion of such a canal is the fact that not only is every foot of the proposed waterway in American territory, but a well known engineer, thoroughly familiar with the proposed route, states unqualifiedly that there are no topographical objections, but that, on the contrary, the land is low and easily excavated, with no rock formations to overcome. With such a certificate on hand, capital will be tempted to look into the project with a view to making early investments.

THE Navy Department is now getting out plans for three new torpedo boats, and as building, except at Cramp's shipyard, is rather slack at this time there will no doubt be very spirited competition to secure a contract for the construction of one or more of these boats. The general dimensions of the three vessels are to be: Length, 160 ft.; beam, 16; mean draught, 5; displacement, 135 tons; indicated horse-power, 2,000; speed, 24½ knots. The armament will be three single-deck torpedo guns; three one-pounder rapid fire guns; four auto-mobile topedoes, 1,800 rounds of one-pounder ammunition. Each vessel is to have a coal capacity of 45 tons. We understand that both forms of bids are to be received as usual, that is one upon plans prepared by the Navy Department and the other upon plans prepared by the bidder. Relative to the bonus system it has been decided by the department to incorporate in the contract a clause giving the successful contractor an opportunity to gain a bonus for speed. Fifteen hundred dollars will be allowed for each quarter knot in excess of the 24½ required up to 25½ knots, and $2,000 for each quarter knot in excess of 25½ knots. This is a most equitable decision, as it rests with the builders more than the actual specifications to bring out efficiency and increased speed by superior work and a greater attention to details over those enumerated in the plans, however carefully such may be drawn up.

ASSISTANTS being required in the branch hydrographic offices at Chicago and Cleveland an examination of candidates for the positions will be held on the 22d inst. at Washington. With how much better grace this would have come if the situations had been left vacant for another month or two, when the lake talent would be in a position to compete for the honors. There are surely many competent navigators and nautical experts connected with the lake trade who would consider such an appointment worth trying for, and coupled with their local knowledge of these waters, such men ought to be considered in advance of purely theoretical scholars, utter strangers to the lake trade, its coasts, customs and modes of piloting.

UNDERWRITERS TAKING A HAND.

Sail tonnage on the lakes, and especially the class known as canal schooners, is fast falling into desuetude, although a few years ago these vessels were considered fairly paying risks. Underwriters, however, ruled out a number of this type under the insurance tariff for 1894, and a growing feeling of distrust relative to their seaworthiness has set in, never to be abated until the now almost obsolete tonnage is entirely chased out of lake commerce and transportation.

As an indication of the drift in the foregoing direction, insurance on a cargo of steel billets, which was being loaded on one of these schooners, went begging among underwriters at Chicago during the past week. The risk was refused all around, and the cargo had to be discharged and shipped on another vessel. This was, perhaps, more especially the direct result of the loss of the schooner William Home, with six people, on Lake Michigan a few ago, since which time there is no doubt but that general agents have been advised by their companies to fight shy of all such indifferent classed tonnage.

The foundering of the Home is not the initial step or origin of the crusade against insuring canal schooners, for such a feeling has been extant during the past three or four years, though it has not been brought to a crisis before, and it may be said that the owners of such vessels have perhaps brought this collapse on prematurely by loading their vessels to a draft that their construction was never intended for. Had the canal schooners always been loaded to a draft not exceeding twelve feet, there would have been fewer losses to meet, and, consequently, the handy and generally staunch seaworthy vessels would have been held in better repute by underwriters, but, instead of giving the vessels a chance by keeping a side out of water, they have been loaded down to the scuppers, and on meeting with bad weather there was no alternative for them but to make a hole in the water and rest easily on the bottom of the lake, taking the crew with them or not, as circumstances prevailed.

History repeats itself, and the qualified vessels of commerce a decade or two past are the incompetents of to-day. So also is the time approaching when a large number of the present steam craft will be considered unsuitable in every way for the lake trade, and they also will be ruled out as the canal schooners are now.

THERE was a falling off in the tonnage passing through St. Mary's Falls canal for September compared with the preceding month. This is mainly accounted for by the decrease in coal shipments owing to the higher rate asked from Lake Erie; the forest fires which burned so fiercely in the Northwest as to delay, and in some cases entirely suspend transportation by rail, and to the further effect of the forest fires in delaying navigation on the lakes owing to the dense smoke prevailing. Notwithstanding the above a gratifying increase of commerce is noted this year over last, and there is little doubt but that the annual volume will go on increasing as the Northwest developes until the present gateway to Lake Superior is found inadequate to accommodate the ordinary traffic. In view of the foregoing, improvements should be kept well ahead of the actual requirements of the times, and to facilitate commerce the present lock at St. Mary's Falls should be enlarged as soon as the new lock is completed, also is it highly necessary to carry out existing contracts as speedily as possible so that further river and harbor improvements and accompanying aids to navigation may be brought about in time to assist and facilitate instead of hindering the commercial progression of the states bordering on the Great Lakes and the vast territory tributary thereto. Though, as we have said, the monthly statement shows a slight decrease in some lines of traffic the total business for the season has been greater than that of any previous year, and the freight traffic for September was much greater than that of the corresponding month in any previous year.

NAVIGATING EXPERTS WANTED.

The civil service commission will hold an examination at Washington, on the 22d inst. to fill two vacancies in the position of nautical expert at Cleveland, O., and the other at Chicago. The subjects of the examination will be letter writing, pure mathematics, physical geography, nautical definations and navigation. These positions are for the branch hydrographic offices recently established at the above named ports.

OBSTRUCTIONS REMOVED.

The Dominion dredge, Ontario, removed several large boulders from the Detroit River, nearly abreast of Amherstburg, 120 feet out from the docks. These boulders were right in the channel and it is supposed were detached from the rocky formation by propeller wheels striking them. These are the rocks upon which the Calumet damaged her forefoot and where the A. A. Parker was on last fall. Another big boulder has been located and will be removed at once, the river will also be swept at this point. Pieces of propeller wheels have been picked up all around the locality.

WRECK TO BE REMOVED.

Tenders are being asked by the Canadian marine department for the removal of the wreck of the schooner R. S. Gibbs, now lying sunk off Bar point, Lake Erie. The tenders are to be in by October 20. The Gibbs, with a cargo of 310 tons of coal foundered on May 23, 1893, and became a total loss. Her owner Capt. Pope, of New Baltimore, Mich., has never made any attempt to remove the wreck.

TRAFFIC THROUGH ST. MARY'S FALLS CANAL.

The following is a comparative statement of commerce east and west bound through St. Mary's Falls Canal, Michigan, for the month of September, seasons of 1893 and 1894, as furnished by the canal officials:

EAST BOUND.

ITEM.	Designat'n.	Sea. 1893.	Sea. 1894.
Copper	Net tons	10,045	13,190
Corn	Bushels	381,856	110,968
Building Stone	Net tons	2,129	2,375
Flour	Barrels	1,019,786	1,208,177
Iron Ore	Net tons	571,554	1,040,429
Iron Pig	"	9,128	2,410
Lumber	M.ft.B.M.	73,458	104,736
Siver Ore	Net tons	820	
Wheat	Bushels	4,514,463	5,396,244
Unclassified Freight	Net tons	20,708	16,466
Passengers	Number	1,451	2,281

WEST BOUND.

ITEM.	Designat'n.	Sea. 1893.	Sea. 1894.
Coal, Anthracite	Net tons	374,339	73,755
Coal, Bituminous	"		552,930
Flour	Barrels	2,500	30
Grain	Bushels	3,600	5,000
Manufactured Iron	Net tons	2,806	6,136
Salt	Barrels	19,197	43,231
Unclassified Freight	Net tons	33,620	39,163
Passengers	Number	1,368	1,821

East bound freight, net tons,	1,532,068
West " " "	678,560
Total	2,210,628

ACTION ON THE OHIO SHIP CANAL.

The provisional committee of the proposed ship canal met at Pittsburgh on Tuesday to hear the report of the engineering committee. The latter has gone over the several routes and reports that the building of the canal is entirely feasible and would be of immense value.

Acting on the recommendation of the engineering committee, the Pittsburgh chamber of commerce decided to issue $100,000 in bonds for this purpose. Erie, Pa., and Geneva, O., are both anxious to have the canal erminus, and each offer financial inducements. It its said that English capitalists are willing to invest in the project. The feeling among the committemen, however, is that the money can be raised in Pittsburgh.

A LIFE SAVING STATION WANTED.

The recent loss of life from the schooner Home in Lake Michigan has drawn attention to the fact that there is no life saving station on the north shore, between the Straits and Poverty passage and that Seul Choix Point, extending as it does so far out into the lake, is a desirable place for a station. A large number of fishermen live on the point, and, if necessary, a volunteer crew could doubtless be procured if a lifeboat was furnished. The light-keeper at the point states that not one of the Home's crew would have been drowned if there had been a life saving crew there to direct the men in the boat where to make a landing. It is known that if the yawl had been steered five yards further either way she would have then landed on the beach in safety. The boat was directed straight for the light-house, directiy in front of which the fatal reef lay. The breakers capsized the boat and the crew were unable to obtain a hold on it to save themselves; the boat came ashore uninjured, not one hundred yards north of where it was capsized. The one survivor caught a line that had for some purpose been fastened to the thwart on which he sat. He held on to it until washed ashore more dead than alive.

LAKE FREIGHTS.

The freight market has been rather quiet during the week, though considerable tonnage has been placed for coal from Ohio ports to the head of the lakes at a 35 cent rate, taken more as ballast than cargo. The iron ore figures quoted so steadily for several weeks past remain the same, with shipments fairly brisk, though there has been a disposition evinced to get the ore down as early as possible and close up the season. A report that Ashland tonnage has been offered 90 cents can not be quoted with any authority, though there is no trouble in getting boats to charter at the old rate for Duluth, grain freights are hardening from that port and there is little doubt but that ore will take a jog ahead in rates within the week.

Coal from Ohio ports to Portage 40 cents, Milwaukee or Green Bay 50 cents, Saginaw 40 cents, Bay City or Detour 35 cents, Port Huron, St. Clair or Marine City 30 cents. Buffalo coal rates have been fairly steady through the week at 55 cents to Chicago, 50 cents Milwaukee, 60 cents Racine, and the Duluth rate cut to 20 cents, Toledo 25 cents, Oswego to Duluth 65 cents, to Chicago 90 cents.

The grain freights out of Chicago have been fluctuating and shipping dull. The rate on oats to Buffalo dropped to 1 cent on Wednesday, a decrease of ⅛ cent from the previous day. Corn 1¼ cents, barley to Kingston 2¼ cents, and wheat to Milwaukee ¾ cent. Wheat to Ogdensburg from Detroit paid 3½ cents, and to Oswego 3 cents: From Duluth 2¾ cents is being freely offered and 3 cents to load next week, several charters having been made at the latter figure. As the season advances and vessels are liable to have to contend with the heavy fall gales, also considering the insurance rebate for an early laying up, of which a certain per centage of tonnage will, as usual, take advantage, it is certain that freights must advance all round and there is yet ample time for the best class of large boats to earn a little money for their owners.

PROMPT SETTLEMENT.

The Commercial Union Assurance Co., of London, paid on Tuesday, through David Vance & Co., of Milwaukee, their proportion of the loss on the steamer James Pickands, amounting to $8,750. Only eighteen days have elapsed since the steamer struck Eagle River Reef on Lake Superior. Vance & Co., as general agents of the Commercial Union, are the first to pay the indemnity on this risk.

DISPLAY WEATHER SIGNALS.

Relative to the display of weather signals, a special from East Tawas, Mich., says that the late change in signals adopted by the weather bureau does not meet the requirements of vesselmen. On September 1st the cautionary signal, red flag with white center, was done away with, but now the information signal is more frequently displayed, which means that the display man has in his possession important information, but how this information can be of any avail to boats at anchorage can not be understood.

The cautionary signal to small vessels has been taken away, and nothing is now shown to warn them of approaching storms, disastrous to them, though not to large craft.

This is evidently a great mistake, and the displayman at East Tawas will hoist the stars and stripes on the receipt of such bulletins, if he can obtain permission from the department, so that the boats in harbor will know that a bulletin has been received, otherwise they would not know of it, and especially is it of necessity in a harbor of refuge, where so many small craft take shelter. Considerable dissatisfaction has been expressed on account of the change and it is hoped a code will speedily be made showing moderate as well as heavy orms.

THE CANADIAN "SOO" CANAL.

Much have been said relative to the new Canadian "Soo" canal, but our special correspondent at Toronto, Mr. John A. Copland, of the Toronto *Globe*, perhaps covers the ground in the following communication as fully as anyone could desire at the present time:

The *Globe* special is as follows:

"In the great chain of natural and artificial waterways which brings the far west into direct communication with the Atlantic seaboard, and which may at no very remote time allow ocean-going vessels to penetrate to the heart of the country, an important link will be supplied in the construction of the new Canadian canal at Sault Ste. Marie. It was a prodigious undertaking, involving the expenditure of millions of dollars, but what men and money can do Canada can do. The work stands forth as another evidence of the fact that in the march of progress she is more than holding her own with the countries of the world. Canada has expended over $71,000,000 on her canal system, with the result that to-day there is a navigable waterway from Belle Isle to Duluth, a distance of 2,384 miles. The system was entirely under Canadian control, with the exception of the American canal, by which the obstacle presented by the Sault is overcome, and it was to make the inland shipping of this country entirely independent of the United States that the new canal was constructed on the Canadian side of the St. Mary River. If the project looking to the deepening of the canals to twenty feet of water is carried into execution, and it yet remains to be shown that the scheme is not feasible, Port Arthur will be brought into direct communication with Liverpool, 4,618 miles away, and the journey from the ocean to Lake Superior will be made entirely in British waters. The wisdom of this country controlling its own waterways cannot be denied, for, though the relations between Canada and the United States should be harmonious, there is always the possibility of complications arising which might seriously affect our commercial and shipping interests, as in 1892, when an impost of twenty cents a ton was levied by the United States on all freight carried through the St. Mary's Falls canal to a Canadian port. The American canal, which, with the St. Mary's River, connects Lake Superior and Lake Huron, was in past years sufficient for the traffic, but the character of the vessels now plying on the Great Lakes has undergone such a change that it is to-day quite inadequate to accommodate the business. Wood in the construction of vessels has been almost entirely superceded by iron and steel, and the dimensions of the lake craft have increased so enormously that the single lock now available is insufficient, and long and expensive delays at the Soo occur constantly during the season of navigation.

The St. Mary's Falls canal is a trifle over a mile in length, while the dock at the southern end of it is 515 feet long, 80 feet wide and has a rise of 18 feet. With the object of facilitating traffic, the American government is now engaged upon the construction of another and a larger lock. It is 800 feet long, 100 feet wide, and, when opened, which will not be for some time yet, it will have a depth of water of 21 feet on the sills. When the Canadian and American works now under construction are completed, three locks will be available for marine traffic at this point, and, despite the assertion that inland navigation is on the decline, all will have plenty to do. A few figures showing the volume of the traffic here might not be uninteresting. During the season of 1893 the freight carried through the St. Mary's Falls canal amounted to 10,796,572 tons, valued at $145,436,957. There was a decrease in the tonnage as compared with the previous year of 417,761 tons, but an increase in value of $10,319,690. The number of vessels using the canal was 12,008. The number of vessels that went through the Suez canal in 1893 was only 3,341, with a total tonnage of 7,659,059 tons, though it must be stated that the value of the freight carried considerably exceeded that which passed through the Soo lock. Still the comparison is interesting as showing the relative importance and traffic of the Soo canal.

The new Canadian canal is about two-thirds of a mile in length, with a mean width of 152 feet and a depth made suitable for navigation at a mean water level by vessels drawing 20 feet of water. The lock at the lower end of the canal is 900 feet long and 60 feet wide, with a depth of water on the sills of 20 feet 3 inches at the lowest recorded water level. In the construction of the lock Ryan & Co., the contractors, appear to have done good work. The material used is limestone, which was brought by vessel from the quarries at Amherstburg. The stones are well cut and well laid. The faces are boucharded, and the coping of the lock is neatly finished with a bottle-nosed row. The gates, though constructed of wood, are of the most substantial character, and appear to be amply sufficient to withstand the tremendous pressure that will be put upon them. They will be operated by electrical power developed by means of turbine wheels, which will be supplied by large iron conduits paralleling the canal.

The design and workmanship of the lock appear to be excellent, but it is unfortunate that the quality of the whole work should be depreciated by some glaring defects in the design of the canal. The immediate approach to the lock at the upper end is faced from top to bottom with stone from one of the Georgian Bay islands, and it is a great pity that this was not continued throughout the whole length of the canal. Instead of continuing the stone facing all the way up wooden cribwork has been placed on either side of the waterway, and on this has been constructed heavy masonry work. The cribs do not possess sufficient strength to sustain the great weight placed upon them, and the result is that the wall has bulged out in places and threatens to give way all along the line. The wall has been reconstructed in places, and to prevent it from bulging out further straining braces sixteen feet long have been erected, and these have been shored up with cement. Of course this patchwork seriously detracts from the character of the whole, but the responsibility for it seems to rest entirely with the department of railways and canals, for the contractors have simply followed the plans placed before them. Another blunder has been committed by the government engineers in placing a stone rest pier almost in the center of the canal, with an unsightly protection trib at either end of it. These mar the beauty of the work, and will remain an eyesore until they are removed, as removed they must be. Besides being unsightly these works form an obstruction to navigation in the canal, and may bring vessels to grief while passing up and down in the night. The plea upon which they have been provided for in the plan is that the span of the railway draw-bridge above is too long to be supported without a rest pier, but there are to-day bridges in use with a span as long as that at the Soo. The canal has cost the country about $4,000,000, and when such a large sum of money was being expended it might have been expected that such obvious mistakes as those referred to would not have occurred. The canal will be ready when the season of 1895 opens, and as the new American lock will not be ready by that time it may be expected that there will be a rush of business on the Canadian side of the river.

A LAKE INDUSTRY.

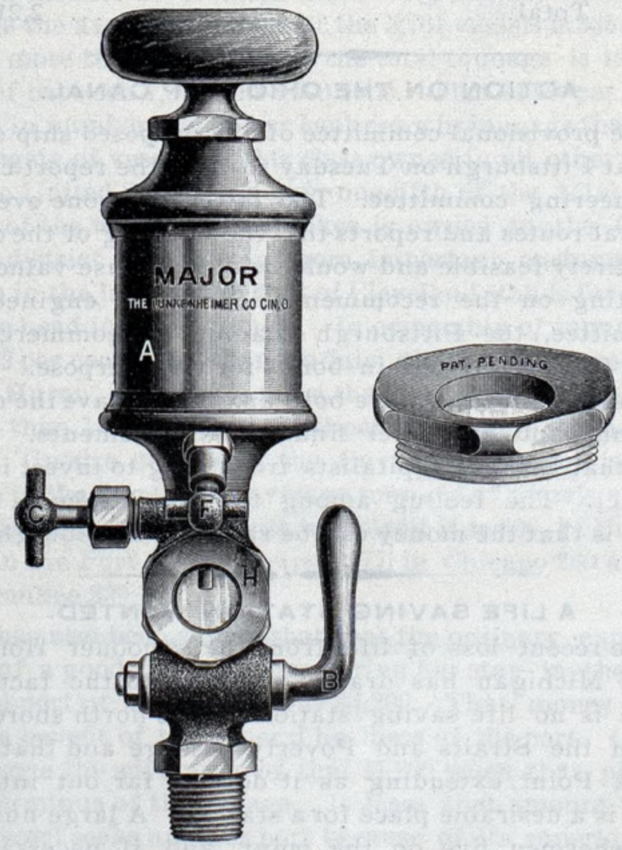
The Montague Iron Works Co., of Montague, Mich., has just closed the following orders: One steeple compound marine engine with cylinders 16 and 30 by 24-inch stroke for the new steamer being built for Monroe & Nicholls, Charlevoix, Mich.; one fore and aft compound marine engine with cylinders 18 and 36 by 30-inch stroke for the steamer H. W. Williams, South Haven, Mich.; one steeple compound marine engine with cylinders 14 and 28 by 20-inch stroke, for the steamer Glenn, South Haven, Mich.; one steeple compound marine engine with cylinders 12 and 21 by 16-inch stroke, for the steamer Lorain L., South Haven, Mich.

The Montague is one of the most progressive engine works on the shores of Lake Michigan, and the work entrusted to their charge is always turned out satisfactorily to their patrons.

SIGHT-FEED LUBRICATOR.

(ILLUSTRATED.)

The Lunkenheimer Co., of Cincinnati, O., have introduced the "Major" lubricator, which is a down drop cup of compact and simple construction, made suitable for pumps, also small engines, and should be placed especially on the steam-chest. According to the cut, A is the reservoir; B steam valve; C oil regulating valve; F drain valve; H bull's eye sight-feed.



The bull's eye sight-feed, on which a patent is now pending, is fitted on the "Major" lubricator, and it does away with the usual annoyance of packing glass tubes. When a glass breaks it is only necessary to replace the entire bull's eye by using an ordinary monkey wrench, so that the utmost facility and simplicity is found in the "Major" lubricator.

AMPLITUDES.

The following approximate amplitudes of the Sun's rising will be given each week in this column during the season of navigation: A second bearing of the Sun may be taken at sunset by reversing the bearings to read west instead of east, as, for example, E. ½ S. for a sunrise bearing would read W. ½ S. for a sunset, or E. 4° S. to W. 4° S.

LAKE ERIE AND S. END LAKE MICHIGAN LAT. 42° N.

Sunrise.	Bearing (degrees.)	Bearing (points.)
Oct. 8	E. 8° S.	E. ¾ S.
Oct. 11	E. 9° S.	E. ⅞ S.

LAKE ONTARIO, S. END HURON AND CENTER LAKE MICHIGAN LAT. 44° N.

Sunrise.	Bearing (degrees.)	Bearing (points.)
Oct. 8	E. 8° S.	E. ¾ S.
Oct. 11	E. 10° S.	E. ⅞ S.

N. END LAKES HURON AND MICHIGAN, LAT. 46° N.

Sunrise.	Bearing (degrees.)	Bearing (points.)
Oct. 8	E. 8° S.	E. ¾ S.
Oct. 11	E. 10° S.	E. ⅞ S.

LAKE SUPERIOR LAT. 48° N.

Sunrise.	Bearing (degrees.)	Bearing (points.)
Oct. 8	E. 9° S.	E. ¾ S.
Oct. 11	E. 11° S.	E. by S.

With a compass correct magnetic, the difference between the observed and true bearings will be the variation for the locality. If there is any deviation on the course the vessel is heading at the time of taking the bearing the result after the variation is applied will be the amount of deviation on that course.

SUITED EITHER WAY.

A good story is told by the *Detroit Evening News* on Capt. William Rolls, master of the raft towing steamer Volunteer, and the late Capt. S. B. Grummond, and while it may not be strictly true it is worth repeating:

S. B. Grummond was captain and owner of the tug—well we'll call her Sassacus—and Rolls was mate with him. Both men had strong individualities and their aggressiveness made them enemies, and the Sassacus had lost many a tow in consequence. But they finally hit upon a scheme that worked to a charm, and here it is:

One day Grummond, who was on watch, sighted the Erastus Corning off Lexington, and going below he roused Rolls, who was having a happy time in the land of dreams, with the cry:

"Come, Bill, get up and take the deck—there's the Corning coming, and you know d——d well that I don't stand no show with old Dobson,"

Up comes Rolls, and hails the Corning, while Grummond conveniently hides.

"On board the Corning!"

"Aye! Aye!"

"Want a tow to Lake Erie?"

"No, sir. That's Steve Grummond's boat, and he don't get a cent's worth of business from me."

"You're wrong there, cap. Grummond used to own this here tug, but I bought him out and gave him his walking papers two weeks ago. I'm running this Sassycuss, now. You know me—Bill Rolls."

"Is it you, Bill? Why of course I know you, and am d——d glad to hear of the change. Take our line," and away goes the tug for Lake Erie with a fine tow-bill behind her.

On Lake Erie after casting off the Corning, they fell in with the Elizabeth Jones, bound up with coal. Rolls was on the watch.

"By all that's holy, if that ain't Tom Jackson. He hasn't any use for me," he exclaimed, when he had read her name.

Going below he awoke Grummond with this stage whisper. "Steve get up; here is old Jackson with the Jones. Let's see what you're good for."

Grummond got up and yelled at Jackson: "Tow you through to lake Huron, Tom."

"Are you the man that hires Bill Rolls?"

"I had him some weeks ago, but he was loosing me so much business that I let him slide. I don't think much of him, nohow."

"No more do I. It's a good thing you let him go, or you'd lose this tow. Well, take the line."

THE "PENBERTHY" INJECTOR.

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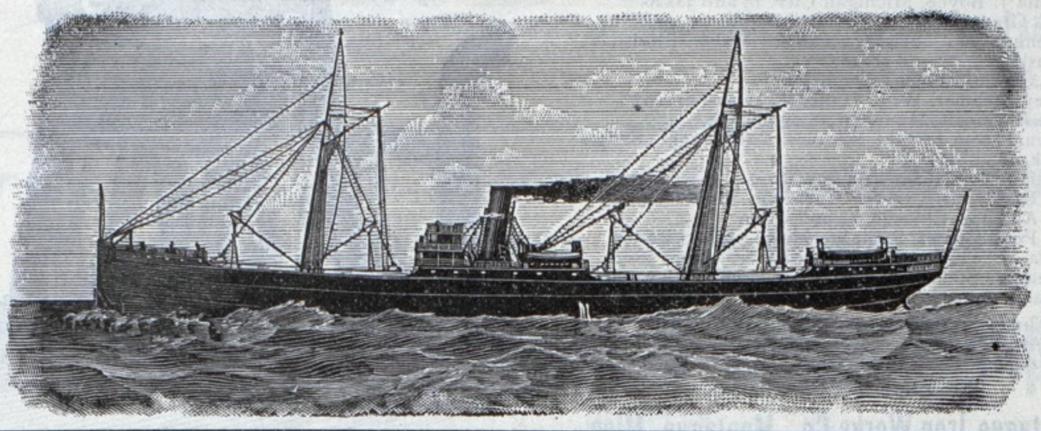

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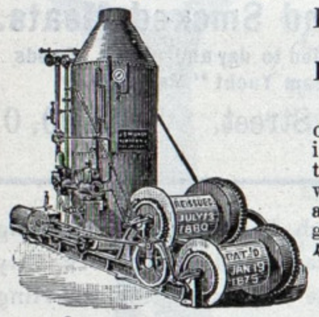

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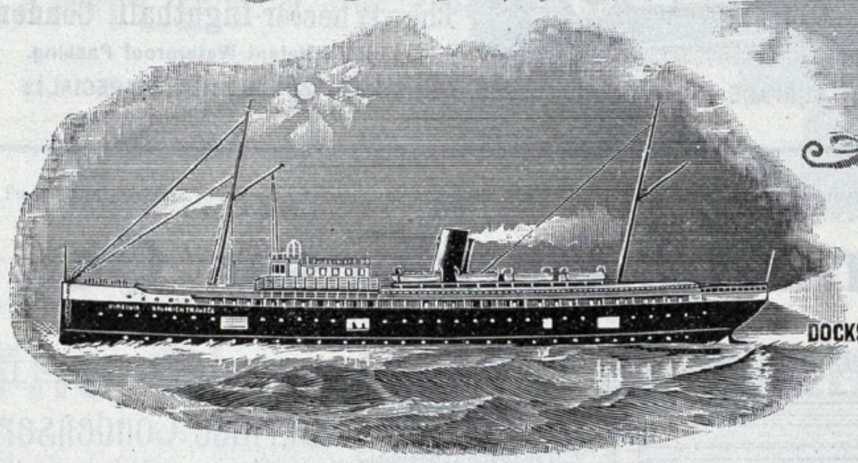

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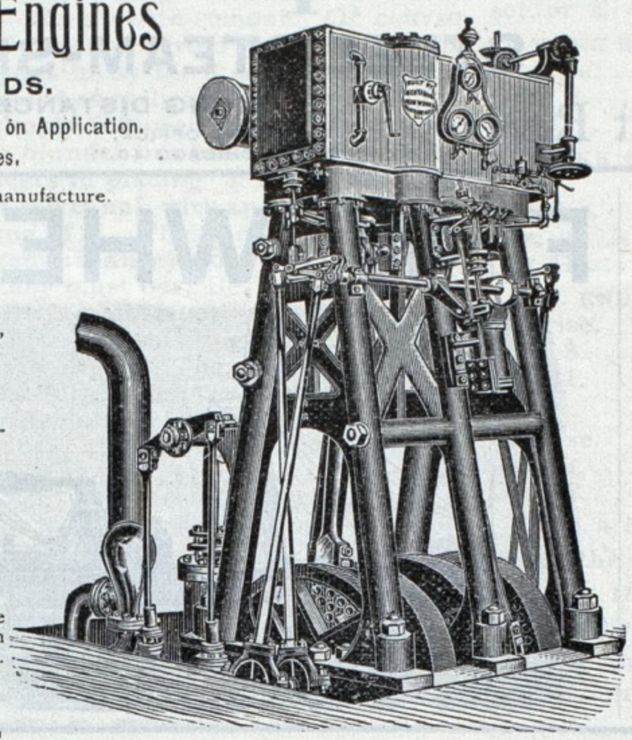

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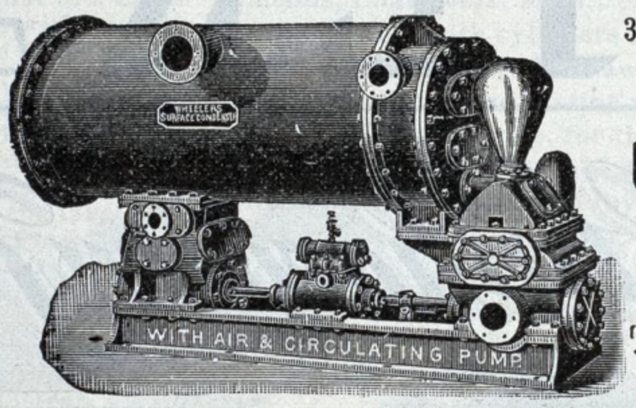

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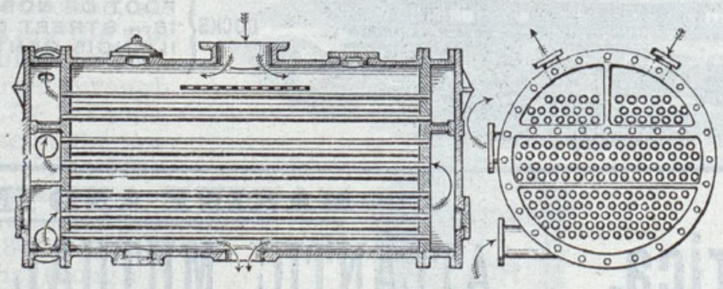

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U. S. ENGINEER OFFICE, 349 Carondelet St., New Orleans, La., September 28, 1894. Sealed proposals for extension of East Jetty and for dredging at Harbor of Sabine Pass, Tex., will be received here until 12 o'clock noon, October 29, 1894, and then publicly opened. Information furnished on application. JAMES B. QUINN, Major, Engineers. 40-43

U. S. ENGINEER OFFICE, 366 Milwaukee St., Milwaukee, Wis., October 1, 1894. Sealed proposals for: Green Bay Harbor, Wis., dredging 200,000 cubic yards; Kewaunee Harbor, Wis., pile pier extension 325 feet; Manitowoc Harbor, Wis., construction of breakwater 400 feet; Sheboygan Harbor, Wis., pile pier construction 900 feet, will be received here until 12 o'clock noon, November 1, 1894, and then publicly opened. All information furnished on application. JAMES F. GREGORY, Major, Engineers. 40-43

U. S. ENGINEER OFFICE, 366 Milwaukee St., Milwaukee, Wis., October 1, 1894. Sealed proposals for: Harbor of Refuge, Milwaukee, Wis., extending breakwater 300 feet; Racine Harbor, Wis., pier extension 150 feet; Kenosha Harbor, Wis., pier extension 150 feet; Waukegan Harbor, Ill., pile pier extension 240 feet, will be received here until 12 o'clock noon, November 6, 1894, and then publicly opened. All information furnished on application. JAMES F. GREGORY, Major, Engineers. 40-43

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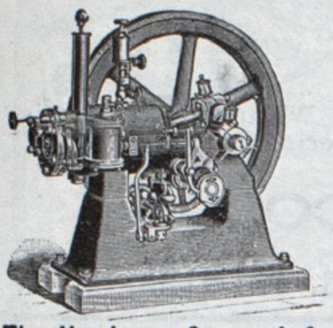

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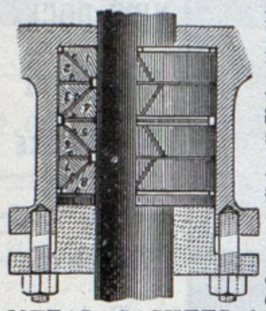

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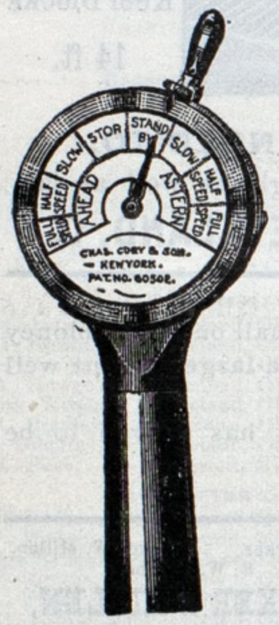

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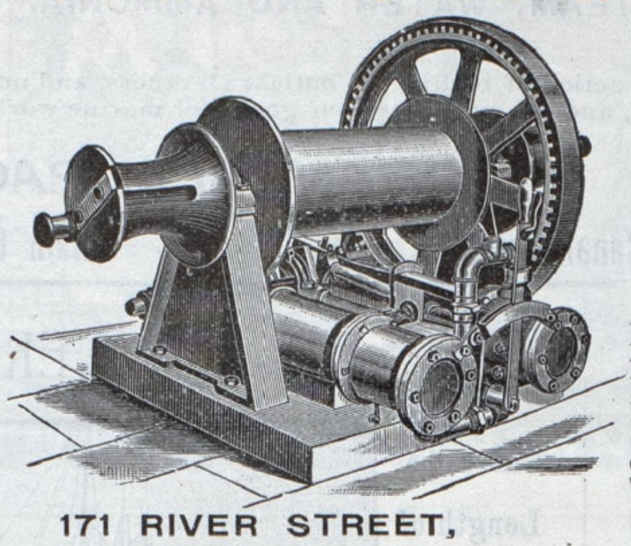

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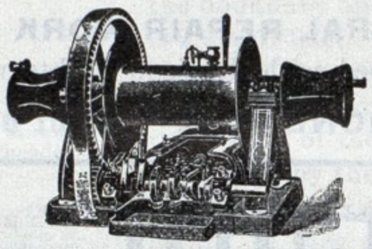

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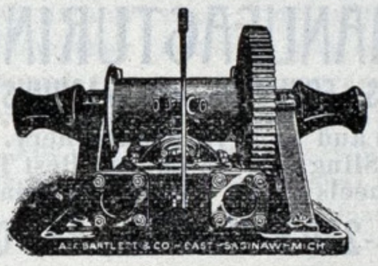

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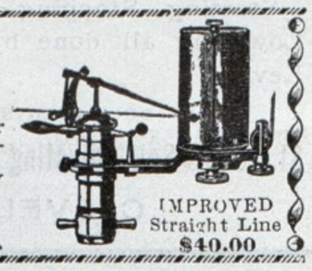

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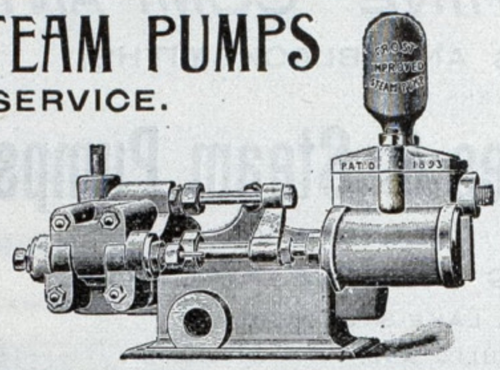

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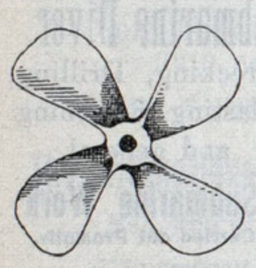

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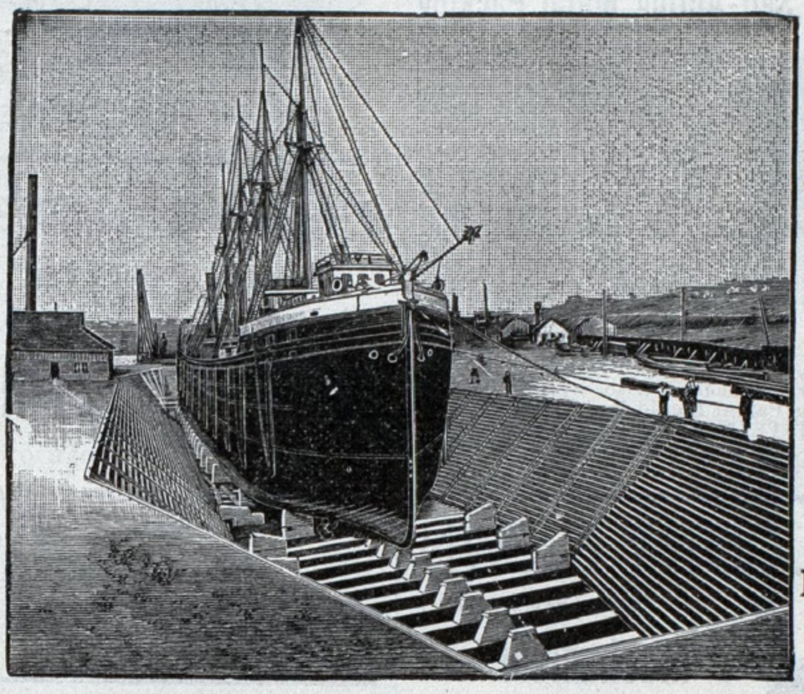

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